

FIVE NEW SPECIES OF *HILARA* FROM SHENNONGJIA, HUBEI (DIPTERA, EMPIDIDAE)

LI Zhu¹, CUI Wenhua², YANG Ding^{2*}

1. Beijing Museum of Natural History, Beijing 100050, China

2. Department of Entomology, China Agricultural University, Beijing 100193, China

Abstract Five new species of *Hilara* from Shennongjia of Hubei are described: *H. auticercus* sp. nov., *H. bispina* sp. nov., *H. longicercus* sp. nov., *H. longiseta* sp. nov. and *H. spina* sp. nov.

Key words Diptera, Empididae, *Hilara*, new species, Shennongjia.

Hilara Meigen is characterized by eyes separated, frons with row of lateral hairs. Sc complete and reaching C₁, R₁ thickened apically, R₄₊₅ furcate, and male fore tarsomere 1 usually swollen (Chvála, 2005). It is distributed worldwide with 389 known species, of which 19 species are known to occur in China (Yang *et al.*, 2007). Here five new species are reported from Shennongjia, Hubei. The types are deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. The following abbreviations are used: acr = acrostichal; ad = anterodorsal; av = anteroventral; C = costal; d = dorsal; dc = dorsocentral; h = humeral; ih = inner humeral; npl = notopleural; oc = ocellar; pd = posterodorsal; ph = posthumeral; presc = prescutellar; psa = postalar; pv = posteroventral; sa = supraalar; sc = scutellar; v = ventral.

1. *Hilara auticercus* sp. nov. (Figs 1–3)

Diagnosis Male fore tarsomere 1 very thick without distinct bristles. Male cercus long and acute apically.

Male Body length 3.3–4.2 mm, wing length 3.6–3.7 mm.

Head black with pale gray pollen. Eyes dark brownish yellow, distinctly separated on frons and face. Hairs and bristles on head black. Ocellar tubercle weak with 2 long oc, 2 short anterior and 4 short posterior hairs. Frons with one row of 6 orbital hairs (4th long bristle). Antenna black, scape with dorsal hairs, pedicel with circlet of black apical hairs, first flagellomere long conical, 1.8 times longer than wide, style black, 1.05 times longer than first flagellomere. Proboscis 0.45–0.50 times longer than head height, blackish with black hairs, palpus blackish with black hairs and bristles and 1 very long strong subapical v.

Thorax black with pale gray pollen. Hairs and bristles on thorax black. Pronotum with 1 lateral bristle, h indistinct, 3 long npl, acr and dc mostly subequal in length, acr irregularly quadriseriate, 2 posterior dc long (posteriormost 1 dc located inward), 1 sa, 1 psa, 1 prsc, scutellum with 2 pairs of sc (lateral sc shorter). Legs blackish except knees dark yellow. Hairs and bristles on legs black. Fore and mid femora with 1 av and 1 pv at tip. Mid femur with 1–2 long anterior bristles at base. Hind femur apically with 5 av and 1 pv. Fore tibia apically with 4 bristles. Fore tarsomere 1 very thick, distinctly longer than total tarsomeres 2–5, 0.85 times as long as fore tibia and 2 times wider than fore tibia without any distinct bristles. Mid tibia with 1 av at middle, apically with 4 bristles. Hind tibia with 2 pd and 3 av, apically with 3 bristles (1 subapical pd long). Wing hyaline, slightly tinged grayish, dark brown stigma long and narrow; veins dark brown. Halter dark brown.

Abdomen curved downward, blackish except hypopygium black, with thin pale gray pollen. Hairs and bristles on abdomen black.

Male genitalia Cercus long and acute apically. Surstylus wide and rounded apically. Hypandrium with mid-posterior process sword-like apically.

Female Unknown.

Holotype ♂, paratypes 2 ♂♂, Hubei Shennongjia, Dalongtan, 28 June 2009, LIU Qi-Fei.

Remarks The new species is somewhat similar to *H. triangulata* Yang *et al.* but may be separated from the latter by the cercus long and acute apically and mid-posterior process of the hypandrium sword-like apically (Yang & Yang, 1997).

Etymology The species is named after the acute cercus.

2. *Hilara bispina* sp. nov. (Figs 4–7)

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* Corresponding author. E-mail: dyangcat@126.com, dyangcat@yahoo.com.cn

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Diagnosis Style distinctly shorter than first flagellomere. Male fore tarsomere 1 slightly thickened with 1 d near base. Surstylus in two spines. Hypandrium with two subapical lateral processes.

Male Body length 3.8 mm, wing length 3.9 mm.

Head black with pale gray pollen. Eyes dark brownish yellow, distinctly separated on frons and face. Hairs and bristles on head black. Ocellar tubercle weak with 2 long oc and 4 short posterior hairs. Frons with one row of 5 orbital hairs (4th long bristle). Antenna black except scape and pedicel brownish yellow; scape with dorsal hairs; pedicel with circlet of black apical hairs; first flagellomere long conical 1.9 times longer than wide; style 0.53 times as long as first flagellomere. Proboscis 0.8 times longer than head height; brownish yellow with dorsal spine black, with black hairs; palpus dark yellow with black hairs and 2 v (1 subapical v very long).

Thorax black with pale gray pollen. Hairs and bristles on thorax black; hairs and bristles on scutum somewhat long. Pronotum with 1 lateral bristle; 1 h, 1 h, 1 ph, 3 np; acr irregularly biseriate and distinct; dc uniseriate and slightly longer than acr; posterior 2 dc slightly long and posteriormost 1 dc slightly located inward; 1 sa, 1 psa, 1 prsc; scutellum with two pairs of sc (lateral sc short). Legs (including coxae) dark yellow to yellow except hind femur and tibia dark brown and tarsi black with tarsomere 1 blackish. Hairs and bristles on legs black. Fore femur with 1 av and 1 pv at tip. Mid femur with 4 long anterior bristles basally with 1 long pv; apically with 2 av and 1 pv. Hind femur apically with 3–4 av and 1 pv. Fore tibia with 4 long ad; apically with 3 bristles (1 ad and 1 pd long). Fore tarsomere 1 thick, little longer than total tarsomeres 2–5, 0.65 times as long as fore tibia and 1.6 times wider than fore tibia, with 1 d near base and 1 short ad and pd at tip. Mid tibia with 1 ad at base, 2 av and 1 pv at apex; apically with 4 bristles. Hind tibia with 1 ad, 2 pd and 4 av; apically with 3 bristles (1 subapical pd long). Wing slightly tinged grayish; dark brown stigma long and narrow; veins dark brown. Halter dark brown.

Abdomen distinctly curved downward, blackish except black hypopygium, with thin pale gray pollen. Hairs and bristles on abdomen black. Male genitalia: Cercus short with acute tip. Surstylus strongly sclerotized in two spines. Hypandrium with two subapical lateral processes.

Female Unknown.

Holotype ♂, Hubei Shennongjia Dabangtan, 29 June 2009, LIU QiFei.

Remarks The new species is easily separated from other known species of the genus by the surstylus divided into two spines.

Etymology The species is named after the surstylus in two spines.

3 *Hilara longicercus* sp. nov. (Figs 8–10)

Diagnosis Antennal scape and pedicel yellow. Male fore tarsomere 1 weakly thickened with 1 d at middle and tip. Male cercus long finger-like.

Male Body length 4.4–4.7 mm, wing length 3.7–4.4 mm.

Head black with pale gray pollen. Eyes dark brownish yellow, distinctly separated on frons and face. Hairs and bristles on head black. Ocellar tubercle weak with 2 long oc and 4 short posterior hairs. Frons with one row of 5 orbital hairs (4th long bristle). Antenna blackish except scape and pedicel yellow; scape with dorsal hairs; pedicel with circlet of black apical hairs; first flagellomere long conical 2.4 times longer than wide; style 0.8 times longer than first flagellomere. Proboscis 0.8 times longer than head height; brownish yellow with apex of dorsal spine black, with black hairs; palpus dark yellow with black hairs and bristles and 1 very long strong subapical v.

Thorax black with pale gray pollen except postalar callus dark yellow. Hairs and bristles on thorax black. Pronotum with 1 lateral bristle; 1 h, 3 long np; acr and dc mostly subequal in length, acr irregularly quadriseriate; 2 posterior dc long (posteriormost 1 dc located inward); 1 sa, 1 psa, 1 prsc; scutellum with 2 pairs of sc (lateral sc shorter). Legs yellow; fore and mid coxae yellow; hind coxa dark yellow; fore tibia dark yellow apically; hind femur and tibia brown; tarsi dark brown except fore tarsomere 1 brown; mid tarsomere 1 and hind tarsomeres 1–2 dark yellow. Hairs and bristles on legs black. Fore and mid femora with 1 av and 1 pv at tip. Mid femur with 4–5 long anterior bristles. Hind femur apically with 4 av and 1 pv. Fore tibia with 4–5 long ad; apically with 3 bristles (1 pd long). Fore tarsomere 1 weakly thickened, little longer than total tarsomeres 2–5, 0.7 times as long as fore tibia and 1.5 times wider than fore tibia, with 1 long d at middle; apically with 1 long d and 1 short pd. Mid tibia with 2 av (1 av near apex strong), apically with 4 bristles (1 av and 1 pv strong). Hind tibia with 1 basal ad, 3 pd and 2 strong median av; apically with 3 bristles (1 subapical pd long). Wing hyaline, slightly tinged grayish; dark brown stigma long and narrow; veins dark brown. Halter dark brown.

Abdomen straight or strongly curved downward, blackish except hypopygium black, with thin pale gray pollen. Hairs and bristles on abdomen black.

Male genitalia Cercus long and bent apically. Surstylus slightly thick with obtuse tip. Hypandrium long and thin apically.

Female Body length 3.7–4.1 mm, wing length

3.6–3.7 mm.

Holotype ♂, paratypes 2 ♂♂, 2♀♀, Hubei Shennongjia Guannenshan, 2 July 2009, LIU QiFei.

Remarks The new species is somewhat similar to *H. aaminate* Yang *et* Wang but may be separated from the latter by the cercus long and bent apically and surstylus slightly thick with an obtuse tip (Yang & Wang 1998).

Etymology The species is named after the long cercus.

4 *Hilara longiseta* sp. nov. (Figs 11–13)

Diagnosis Scutum with two black median vittae. Scutellum with 8 marginal bristles. Male fore tarsomere 1 very thick without distinct dc. Epandrial lobe with very long bristles. Hypandrium with two subapical lateral processes.

Male Body length 6.3–6.5 mm, wing length 6.5–6.7 mm.

Head black with pale gray pollen. Eyes dark brownish yellow, widely separated on frons and face. Hairs and bristles on head black except postero-ventral surface with pale hairs. Ocellar tubercle weak with 2 long oc and 4 short posterior hairs. Frons with one row of 6 orbital hairs (5th long bristle). Antenna black, scape with dorsal hairs, pedicel with circlet of black apical hairs, first flagellomere long conical 2.5 times longer than wide, style 1.05 times longer than first flagellomere. Proboscis 0.8 times longer than head height, mostly brownish yellow with dorsal spine black, with black hairs, palpus black with pale hairs and 1 very long subapical v.

Thorax black with pale gray pollen, scutum with two black median vittae. Hairs and bristles on thorax black, hairs on scutum very short, bristles also short. Pronotum with 1 lateral bristle, h indistinct, 2 long np↓ acr irregularly quadriseriate and very short, dc uniseriate and slightly longer than acr, posterior most 1 dc slightly long and slightly located inward, 1 sa, 1 psa, 1 prsc; scutellum with 4 pairs of sc. Legs black except knees dark yellow. Hairs and bristles on legs black except those on coxae and trochanters pale, femora with pale ventral hairs at base. Fore and mid femora with 1 av and 1 pv at tip. Mid femur with 6 long anterior bristles. Hind femur apically with 3–4 av and 1 pv. Fore tibia apically with 3 bristles. Fore tarsomere 1 very thick, longer than total tarsomeres 2–5, 0.75 times as long as fore tibia and 1.8 times wider than fore tibia without distinct d, but only with 1 short ad and pd at tip. Mid tibia with 1 ad at base, apically with 4 bristles. Hind tibia with 3 pd, apically with 3 bristles (1 subapical pd long). Wing slightly tinged grayish, dark brown stigma long and narrow; veins dark brown. Halter dark brown.

Abdomen nearly straight, blackish with black apical portion, with thin pale gray pollen. Hairs and bristles on abdomen pale except those on apical portion mostly black.

Male genitalia Cercus short and thick. Surstylus short and obtuse. Hypandrium with two subapical lateral processes.

Female Unknown.

Holotype ♂, paratypes 2 ♂♂, Hubei Shennongjia, Dalongtan, 28 June 2009, LIU QiFei.

Remarks The new species is somewhat similar to *H. sheni* Yang, Wang, Zhu *et* Zhang but may be separated from the latter by the surstylus short and obtuse (Yang, Wang, Zhu *et* Zhang 2010).

Etymology The species is named after the long bristles on the epandrium.

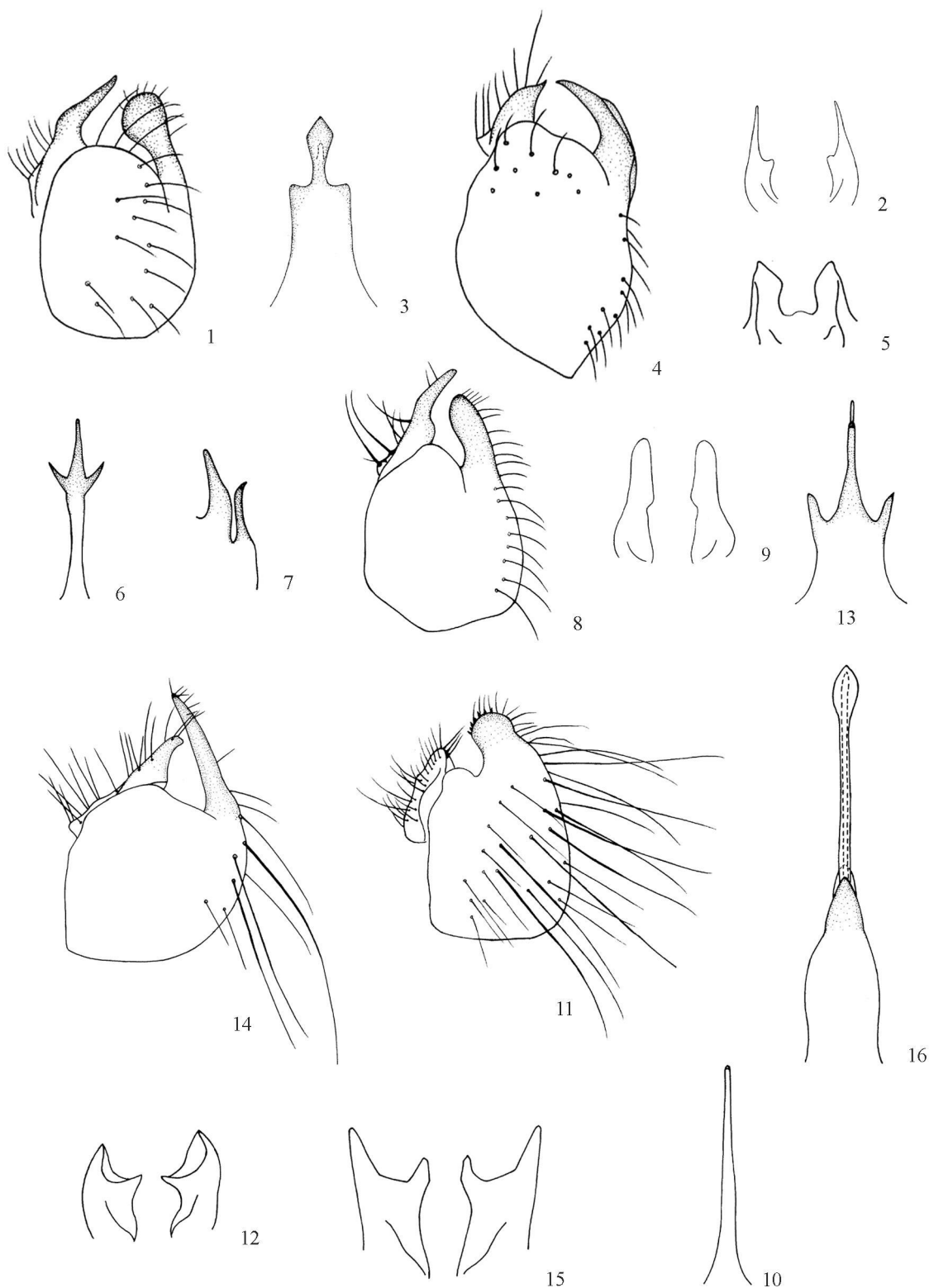
5 *Hilara spina* sp. nov. (Figs 14–16)

Diagnosis Thoracic pleuron mostly dark yellow or yellow. Antennal scape and pedicel yellow. Male fore tarsomere 1 distinctly thickened without distinct bristles. Epandrial lobe with several very long bristles. Surstylus long spine-like.

Male Body length 5.1–6.2 mm, wing length 5.2–6.5 mm.

Head black with pale gray pollen. Eyes brownish yellow, distinctly separated on frons and face. Hairs and bristles on head black. Ocellar tubercle weak with 2 long oc and 4 short posterior hairs. Frons with one row of 6 orbital hairs (4th long bristle). Antenna blackish except scape and pedicel yellow, scape with dorsal hairs, pedicel with circlet of black apical hairs, first flagellomere long conical 2.1 times longer than wide, style as long as first flagellomere. Proboscis 0.7 times longer than head height, dark brownish yellow with dorsal spine black, with black hairs, palpus brownish yellow with black hairs and bristles and 1 very long strong v near middle.

Thorax black with pale gray pollen except humeral and postalar calli dark yellow; scutum with three dark vittae, pleuron dark yellow to yellow except mesopleuron brownish yellow, stemopleuron and hypopleuron mostly blackish or black. Hairs and bristles on thorax black. Pronotum with 1 lateral bristle, 1 h, 2–3 long np↓ acr and dc short hair-like, acr irregularly quadriseriate, 2 posterior dc long (posterior most 1 dc not located inward), 1 sa, 1 psa, 1 prsc; scutellum with 2 pairs of sc (lateral sc shorter). Legs including coxae yellow; hind femur apically with dorsal surface and entire hind tibia brown; tarsi black except fore tarsomere 1 and mid tarsomeres 1–2 brownish yellow, hind tarsomere 1 brown. Hairs and bristles on legs black. Fore and mid femora with 1 av and 1 pv at tip. Mid femur with 5–6 long anterior bristles. Hind femur apically with 2 weak



Figs 1-3 *Hilara acuticars* sp. nov. 4-7 *Hilara bispina* sp. nov. 8-10 *Hilara longicars* sp. nov. 11-13 *Hilara longiseta* sp. nov. 14-16 *Hilara pina* sp. nov. 1, 4, 8, 11, 14 Tergite 9 and cerci lateral view. 2, 5, 9, 12, 15 Cerci dorsal view. 3, 6, 10, 13, 16 Apical portion of hypandrium, posterior view. 7. Surstylus posterior view.

av and 1 pv. Fore tibia apically with 3 bristles. Fore tarsomere 1 distinctly thickened, longer than total

tarsomeres 2-5. 0.85 times as long as fore tibia and 1.8 times wider than fore tibia, without distinct

bristles Mid tibia with 2 av, apically with 4 bristles Hind tibia with 1 basal d 5–6 pd and 3–4 av, apically with 3 bristles (1 av strong). Wing hyaline, slightly tinged grayish, dark brown stigma long and narrow; veins dark brown Halter dark brown

Abdomen nearly straight apically curved downward blackish except hypopygium black with thin pale gray pollen Hairs and bristles on abdomen black

Male genitalia Cercus narrowed apically in lateral view. Surstylus very long and spine-like Hypandrium thick with subtriangular apex

Male genitalia Epandrial lobe with several very long bristles Surstylus long spine-like

Female Body length 5.1–6.2 mm, wing length 5.7–5.8 mm

Holotype ♂, paratypes 3 ♂♂, 5 ♀♀, Hubei Shennongjia Dabangtan, 28 June 2009, LIU Qi-Fei

Remarks The new species is similar to *H. guizhouensis* Yang et Zhang but may be separated from

the latter by the hypandrium thick with the subtriangular apex and thorax partly yellow (Yang & Zhang 2006).

Etymology The species is named after the long spine-like surstylus

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湖北神农架喜舞虻属五新种 (双翅目, 舞虻科)

李 竹¹ 崔维娜² 杨 定^{*}

1 北京自然博物馆 北京 100050

2 中国农业大学昆虫学系 北京 100193

摘要 记述湖北神农架喜舞虻属 *Hilara* 5 新种, 即须尖喜舞虻 *H. acuticercus* sp. nov., 双刺喜舞虻 *H. bispina* sp. nov., 长须喜舞虻 *H. longicercus* sp. nov., 长鬃喜舞虻 *H. longiseti* sp. nov. 和刺突喜舞虻 *H. spina* sp. nov.

1 须尖喜舞虻, 新种 *Hilara acuticercus* sp. nov. (图 1~3)

新种与角突喜舞虻 *H. tringulata* Yang et Yang 有些近似, 但后者尾须端部指状, 下生殖板的中后突端细。

正模 ♂, 副模 2 ♂♂, 湖北神农架大龙潭, 2009-06-28 刘启飞。

词源: 种名意指尾须尖。

2 双刺喜舞虻, 新种 *Hilara bispina* sp. nov. (图 4~7)

新种背侧突独特, 呈二刺突状, 明显不同于本属其它种。

正模 ♂, 湖北神农架大龙潭, 2009-06-29 刘启飞。

词源: 种名意指背侧突呈二刺状。

3 长须喜舞虻, 新种 *Hilara longicercus* sp. nov. (图 8~10)

新种与尖突喜舞虻 *H. acuticercus* Yang et Wang 有些近似,

关键词 双翅目, 舞虻科, 喜舞虻属, 新种, 神农架。

中图分类号 Q969.451.2

但后者背侧突端窄, 尾须短, 前足基附节中部有 2 根背鬃。

正模 ♂, 副模: 2 ♂♂, 2 ♀♀, 湖北神农架官门山, 2009-07-02 刘启飞。

词源: 种名意指尾须长。

4 长鬃喜舞虻, 新种 *Hilara longiseti* sp. nov. (图 11~13)

新种与申喜舞虻 *H. sheni* Yang Wang Zhu et Zhang 有些近似, 但后者背侧突端尖。

正模 ♂, 副模 2 ♂♂, 湖北神农架大龙潭, 2009-06-28 刘启飞。

词源: 种名意指上生殖板的长鬃。

5 刺突喜舞虻, 新种 *Hilara spina* sp. nov. (图 14~16)

新种与贵州喜舞虻 *H. guizhouensis* Yang et Zhang 近似, 但后者下生殖板端部窄, 胸部全黑色。

正模 ♂, 副模: 3 ♂♂, 5 ♀♀, 湖北神农架大龙潭, 2009-06-28 刘启飞。

词源: 种名意指背侧突长刺状。

* 通讯作者。